## REMARKS

**Amendments**

New claim 45 is directed to a further aspect of the invention and is supported by the disclosure at, for example, page 17, lines 13-15, and page 78, line 8-page 79, line 1. Claim 1 is amended to recite the term "antimicrobial pigment" to provide antecedent basis for language in claim 45.

**Abstract**

Applicants have deleted the old abstract and replaced it with a new abstract that further describes the claimed invention.

**Rejection under 35 USC § 103(a) in view of Senga et al., Bagala, Seo et al., and Rick et al.**

Claims 1-3, 6-17, 19, 33-37, 42, and 43 are rejected as allegedly being obvious in view Senga et al. (US 6,489,018) in combination with Bagala (US 7,045,007), the Seo et al. article and Rick et al. (US 2004/0177788). This rejection is respectfully traversed.

Senga et al (US 018) disclose a reversibly thermochromic light-transmitting laminate which comprises a substrate and a reversibly thermochromic layer formed thereon. This thermochromic layer comprises a transparent resin and, dispersed therein, a reversibly thermochromic microencapsulated pigment. The pigment contains a reversibly thermochromic composition which comprises: (a) an electron-donating color-forming organic compound; (b) an electron-accepting compound; and (c) a reaction medium determining the temperatures at which the color reactions of component (a) with component (b) will occur.

Senga et al. also disclose that according to one embodiment of the invention, the laminate may further comprise a metallic glossy layer, having a light transmittance of 5% or higher, which is formed over the reversibly thermochromic layer. This metallic glossy layer contains a metallic luster pigment having transparency.

The disclosure of Senga et al that is relied on in the rejection concerns this optional metallic glossy layer. In the rejection, reference is made to the disclosure of Senga et al. at column 6, lines 26-29. This portion of the Senga et al. disclosure discusses the metallic luster pigments that can be used for metallic glossy layer. Specifically, Senga et al. disclose

metallic luster pigments which use synthetic mica as the core material, rather than natural mica, "have excellent transparency and is highly lustrous and glittering." Senga et al. also disclose that such pigments can be prepared by coating the surface of synthetic mica with one or more metal oxides comprising titanium oxide, as the main component, wherein the pigment is transparent and has a metallic luster of gold, silver, or another color depending on the degree of coating with the metal oxides. The shape of the mica can be flat or flaky, and the metal oxides that can be used to coat the mica include oxides of titanium, zirconium, chromium, vanadium, and iron.

As acknowledged in the rejection, Senga et al. also do not disclose that the metallic luster pigments particles contain silver oxide. Senga et al. also do not disclose that metallic luster pigments particles are prepared by agitating a suspension of the pigments with silver oxide at a temperature between 10°C and 60°C, or an amount of silver oxide of 0.01 to 0.5% by weight, based on the total weight of the pigment.

In addition, Senga et al. also do not disclose that the metallic luster pigment particles have Hunter model L, a and b values of: $-6 \leq \Delta L \leq 6$, $-5 \leq \Delta a \leq 5$, and $-5 \leq \Delta b \leq 5$. Compare claim 1.

Moreover, Senga et al. do not disclose that the metallic luster pigment particles are used in a topical formulation or a composition which comprises metallic luster pigment particles and one or more cosmetically or dermatologically suitable vehicles. Here again compare applicants' claim 1.

In fact, the Senga et al. disclosure does not relate to topical compositions or cosmetic compositions at all. Instead, the Senga et al. disclosure relates to the application of a reversibly thermochromic layer to a substrate to form a laminate. Senga et al. disclose that the substrate can be selected from papers, synthetic papers, artificial leathers, natural leathers, plastics, glasses, porcelains and pottery, woods, stones, and metals. Senga et al. also disclose that the substrate can have a flat shape or have recesses and protrusions, or can be a three-dimensional substrate made of a transparent resin, such as "dolls and toys modeled on, e.g., animals, vehicles, buildings, plants, foods, or stones." See column 4, line 52 – column 5, line 12. See also the examples wherein the substrates used are toy jewels and minicars.

With regards to the use of silver, the rejection relies on the disclosure of Bagala (US '007). Bagala discloses an effect pigment made from a mixture of coated laminar platelets, wherein the platelets are a mixture of different substrate materials, such as glass and mica.

See, e.g., column 3, lines 23-35. Bagala also disclose that one of the substrates can be either platy aluminum oxide or platy glass, and the other laminar substrate can be platy aluminum oxide, platy glass, or another platy material such as aluminum, mica, bismuth oxychloride, platy iron oxide, platy graphite, or platy silica.

At column 3, line 37 -column 4, line 37, Bagala describe the general preparation of the effect pigment. The procedure involves dispersing the particulate (flakes) in, for example, water and then combining that resultant water/particulate slurry with a titanium oxide precursor (such as titanium, titanyl chloride or titanium tetrachloride) or iron oxide precursor (e.g., ferric chloride) to form a titanium oxide or iron oxide coating on the flakes. Precipitation is controlled by controlling the pH of the resulting slurry using a suitable base such as sodium hydroxide or if necessary an aqueous acid such as hydrochloric acid. The coated platelets, after being washed and dried if desired, are calcined to the final effect pigment.

In the rejection, reference is made to the disclosure of Bagala at column 4, lines 38-52. This portion of the disclosure relates to variable effect pigments. As described by Bagala, these pigments comprise a substrate that is coated with a reflecting layer, which is then overcoated with a low index of refraction material, which is then optionally further overcoated with a selectively transparent third layer. The reflecting layer can be made of, for example, silver, gold, platinum, palladium, rhodium, ruthenium, osmium, iridium or their alloys. The selectively transparent third layer can be made from silicon, iron oxide, chromium oxide, a mixed metal oxide, titanium dioxide, titanium nitride, aluminum and the materials used to make the reflecting layer.

Thus, this portion of the Bagala disclosure does disclose the possibility of variable effect pigment having a reflecting layer made from silver. However, this disclosure relating to variable effect pigments does not suggest pigment particles obtained by agitating a suspension comprising one or more inorganic pigments and silver at a temperature between 10°C and 60°C.

The rejection also refers to the disclosure in Example 45 of Bagala. In this example, a mixture of glass flakes and mica is placed in a beaker containing 2% dextrose solution and stirred at room temperature. Thereafter, a solution of silver nitrate crystals, distilled water and ammonium hydroxide are rapidly added to the slurry. The resultant slurry is filtered, rinsed and dried at 100°C. The dried material is said to be "a lustrous, opaque and silver

colored material." Next, this silver-coated material is slurried with isopropanol. Then, distilled water, ammonium hydroxide, and tetraethoxysilane are added to the slurry. The resultant silica-coated material is then slurried with 1% dextrose solution, and a solution of $AgNO_3$, water and ammonium hydroxide is added to the slurry. The resultant product, when incorporated into a lacquer film, is said to display "a very clean color flop from blue to violet upon a change in viewing angle."

In the rejection, the Examiner makes a calculation based on the amount of silver nitrate crystals (7.87 grams) added in Example 45 and half of the original mixture of glass and mica flakes. It is unclear why only half of the amount of the total mixture of glass and mica is used for this calculation. In any event, if one were to assume that all of the silver nitrate is deposited on the mixture of flakes, then the overall amount of silver nitrate relative to the total weight of flakes and silver nitrate is 7.87/(100 +7.87) or 0.0729 or **7.29 %.** If one were to use 50 g as the weight of the flakes, as is implied in the rejection, then the percentage is even higher, i.e., **14.6 %.** Thus, contrary to the implication, Bagala provides no suggestion of a pigment containing 0.01 to 0.5% by weight silver oxide (or silver nitrate), based on the total weight of the pigment.

It is acknowledged in the rejection, that Bagala, like Senga et al., does not disclose (1) that the pigments comprise silver oxide, or (2) that the pigments particles are prepared by agitating a suspension of the pigments with silver oxide at a temperature between 10°C and 60°C,. In addition, as noted above, Bagala, like Senga et al., does not disclose using silver oxide in an amount of is 0.01 to 0.5% by weight, based on the total weight of the pigment.

In the rejection, it is asserted that it would be obvious to discover optimum ranges. However, with regards to optimization, one of ordinary skill in the art would optimize based on a desired property. In the case of Bagala, silver is used to form a reflective layer and to provide the color effect described in Example 45 (e.g., color flop). Thus, if it were obvious to optimize the amount of silver used by Bagala, one would do so based on the achievement of the reflective/color properties. There is no suggestion in the rejection that seeking such an optimization would result in the use of silver oxide in an amount of 0.01 to 0.5% by weight, based on the total weight of the pigment, especially since Bagala uses much higher amounts of silver.

With respect to the product-by-process language, it is argued in the rejection that if the product obtained by the claimed process "is the same as or obvious from a product of the

prior art" then the claim is unpatentable even thought the product is made by a different process. However, as can be seen from the discussion of the disclosures of Senga et al. and Bagala, the claimed product is not the same as or obvious from products obtained from the combined disclosures of Senga et al. and Bagala.

Furthermore, while the rejection discusses the disclosure of Bagala and the use of a silver reflective layer in a variable effect pigment, the rejection does not explain how or why the disclosure of Bagala would be used to modify the disclosure of Senga et al. It is noted in the rejection, that Bagala disclose the use of pigments in cosmetics. See column 6, line 52 – column 7, line 3 of Bagala. However, Senga et al is not directed to the use of pigments in cosmetics. The rejection does not explain how the laminate structure of Senga et al. is to be modified based on Bagala's disclosure of a variable effect pigment containing a silver reflective layer. Nor does the rejection explain how the resultant modification would render obvious a topical formulation or a composition containing pigment particles and one or more cosmetically or dermatologically suitable vehicles. Compare applicants' claim 1.

In addition, as with the disclosure of Senga et al., Bagala does not disclose pigment particles having Hunter model L, a and b values of: $-6 \leq \Delta L \leq 6$, $-5 \leq \Delta a \leq 5$, and $-5 \leq \Delta b \leq 5$. Compare applicants' claim 1.

The rejection refers to page 83 of the article of Seo et al. This article does disclose on page 83 that cosmetics can be made of "water, hydrocarbons (such as oils and waxes), surfactants, humectants, polymeric thickeners and pigments." The article further indicates that cosmetics can become contaminated and can provide nutrients for microorganisms. Seo et al. also disclose that certain metal ions including silver ions have antimicrobial activity.

However, Seo et al. do not disclose or suggest obtaining an antimicrobial inorganic pigment by agitating a suspension comprising one or more inorganic pigments and silver oxide. In the process described by Seo et al. (see page 84, right column) an aqueous solution of silver nitrate is used to coat pigments to introduce silver ions into the pigments. After the coating step, the coated pigments are sintered at 825°C. Thus, the Seo et al. process also does not disclose or suggest preparing antimicrobial pigment particles by agitating a suspension comprising one or more inorganic pigments and silver oxide at a temperature between 10°C and 60°C. Also, Seo et al. disclose that they used silver ions at 1% by weight.

In addition, as with the disclosure of Senga et al. and Bagala, Seo et al. do not disclose pigment particles having Hunter model L, a and b values of: $-6 \leq \Delta L \leq 6$, $-5 \leq \Delta a \leq 5$, and $-5 \leq \Delta b \leq 5$. Compare applicants' claim 1.

With respect to the disclosure of Rick et al. (US '788), it is respectfully submitted that the rejection fails to establish that this document is prior art with respect to applicants' claimed invention. Rick et al. (US '788) is the publication of US patent application Serial No. 10/796,187, filed March 10, 2004. Applicants' application claims priority of PCT application PCT/EP04/03090, filed March 24, 2004, **and** US provisional patent application Serial No. 60/463,726, filed April 18, 2003, **i.e., before the filing date of Rick et al.**

It is noted that US provisional application Serial No. 60/463,726 discloses at page 3, lines 5-7 that "the present invention describes antimicrobial pigments, obtained by agitating a suspension comprising one or more inorganic pigments and silver oxide." Serial No. 60/463,726 also discloses that the antimicrobial pigments can be used in cosmetics (see, e.g., page 1, lines 1-3 and page 14, line 30 – page 15, line 23); preparing the pigments by agitating a suspension of pigments and silver oxide at a temperature between 10°C and 60°C (see, e.g., page 1-11); a silver oxide amount of 0.01 to 0.5% by weight, based on the total weight of the pigment (see, e.g., page 8, lines 24-26); and pigment particles having the Hunter model L, a and b values of: $-6 \leq \Delta L \leq 6$, $-5 \leq \Delta a \leq 5$, and $-5 \leq \Delta b \leq 5$ (see, e.g., page 10, lines 12-17). Compare applicants' claim 1.

The rejection relies on the disclosure of Rick et al regarding coating a substrate such as mica with successive layers of materials with different refractive indices. See, e.g., the abstract. However, Rick et al. provide no disclose or suggestion of the features recited in applicants' claim 1. Thus, Rick et al. do not disclose a formulation for topical applications comprising antimicrobial pigment particles and one or more cosmetically or dermatologically suitable vehicles. Rick et al. also provide no disclosure of preparing antimicrobial pigment particles by agitating a suspension comprising one or more inorganic pigments and silver oxide at a temperature between 10°C and 60°C.

In the rejection, it is asserted that Rick et al. "contemplate values of L, a, and b" citing Examples 1-4 of Rick et al. However, the values of L, a, and b listed in the Examples of Rick et al. are significantly different and do not suggest the values of L, a, and b recited in applicants' claim 1. Thus, as with the disclosure of Senga et al., Bagala, and Seo et al., Rick

et al. do not disclose pigment particles having Hunter model L, a and b values of: $-6 \leq \Delta L \leq 6$, $-5 \leq \Delta a \leq 5$, and $-5 \leq \Delta b \leq 5$. Compare applicants' claim 1.

In view of the above remarks, it is respectfully submitted that the disclosure Senga et al. (US 6,489,018), alone or in combination with the disclosures of Bagala (US 7,045,007), the Seo et al. article, and/or Rick et al. (US 2004/0177788), fails to render obvious applicants' claimed invention. Withdrawal of the rejection is respectfully requested.

**Rejection under 35 USC § 103(a) in view of Senga et al., Bagala, Seo et al., Rick et al., Vollhardt, Scott et al., Hashim, and De Tommaso**

Claims 4, 5, and 20-28 are rejected as allegedly being obvious in view of Claims 4, 5, 20-28, and 33 are rejected as being obvious in Senga et al. (US 6,489,018), Bagala (US 7,045,007), the Seo et al. article and Rick et al. (US 2004/0177788), and further in view of Vollhardt (US 6,274,124), Scott et al. (US 6,482,397), the article by Hashim, and De Tommaso (WO 02/04012). This rejection is also respectfully traversed.

Senga et al., Bagala et al., Seo et al., and Rick et al. are discussed above. Vollhardt, Scott et al., and De Tommaso provide no suggestion to modify the laminate described by Senga et al. so as to arrive at a formulation in accordance with applicants' claimed invention.

Vollhardt disclose a cosmetic or dermatological formulation for topical application to the skin that comprises at least one cosmetic and/or dermatological active agent and an acceptable carrier, wherein the addition of 1,2-pentanediol improves the water resistance of the formulation. See column 3, lines 26-32.

Vollhardt further disclose that the formulation can also contain organic UV filter substances, antioxidants, and/or inorganic pigments. Vollhardt disclose oxides of titanium, zinc, iron, zirconium, silicon, manganese, aluminum, cerium and mixtures thereof as inorganic pigments. See column 2, lines 16-18, and column 4, lines 36-41.

In terms of as cosmetic and/or dermatologically active agent disclose antioxidants, anti-inflammatory compounds, anti-microbial compounds ("like Farnesol, Triclosan, and mixtures thereof"), antiperspirants, fragrance compounds, and skin whitening compounds. See column 4, line 50 – column 6, line 54.

In the rejection, it is asserted that it would be obvious to combine the disclosure of Vollhardt with that of Senga et al. "when seeking a novel cosmetic or dermatological composition with increased water resistance and light (Sun) protection. This assertion

presents no reason for modifying the disclosure of Senga et al. based on the Vollhardt since Senga et al. is not directed to a cosmetic or dermatological composition.

Scott et al. (US '397) disclose a cosmetic compositions containing: (a) an artificial tanning effective amount of a self tanning agent (such as DHA, i.e., dihydroxyacetone); (b) a composition coloring agent; and, (c) a cosmetically acceptable carrier adapted for topical application to human skin. The composition may also contain antimicrobial agents and preservatives such as: benzalkonium chloride, benzoic acid, benzyl alcohol, butylparaben, chlorbutanol, ethyl paraben, methyl paraben, parahydroxybenzoic acid alkyl esters, phenylethyl alcohol, phenyl mercuric acetate, potassium sorbate, proprionate salts, propylparaben, sodium benzoate, sodium dehydroacetate and sorbic acid. See column 4, lines 63 – column 5, lines 5.

The rejection fails to present any reason as to why one skilled in the art would modify the laminate structure described by Senga et al., such as a coated minicar, based on the cosmetic compositions disclosed by Scott et al.

De Tommaso disclose an anhydrous pharmaceutical composition comprising vancomycin. As disclosed by De Tommaso, vancomycin is an antibiotic having broad spectrum antimicrobial activity.

The rejection fails to present any reason as to why one skilled in the art would modify the laminate structure described by Senga et al., such as a coated minicar, based on the pharmaceutical composition disclosed by De Tommaso.

The Hashim article merely discloses that cosmetic products can contain nutrients that support microbial growth. The rejection fails to present any reason as to why one skilled in the art would modify the laminate structure described by Senga et al., such as a coated minicar, based on the cosmetics disclosed by Hashim.

In general, none of the cited references disclose or suggest obtaining an antimicrobial inorganic pigment by agitating a suspension comprising one or more inorganic pigments and silver oxide at a temperature of 10 - 60°C, wherein the amount of silver oxide of 0.01 to 0.5% by weight, based on the total weight of the pigment. Nor do any of the references disclose pigment particles having Hunter model L, a and b values of: $-6 \leq \Delta L \leq 6$, $-5 \leq \Delta a \leq 5$, and $-5 \leq \Delta b \leq 5$. Compare claim 1.

In view of the above remarks, it is respectfully submitted that the disclosure of Senga

et al., taken alone or in combination with disclosure of Bagala et al., Seo et al., Rick et al., Vollhardt, Scott et al., Hashim and De Tommaso fails to render obvious applicants' claimed invention. Withdrawal of the rejection is respectfully requested.

The Commissioner is hereby authorized to charge any fees associated with this response or credit any overpayment to Deposit Account No. 13-3402.

Respectfully submitted,

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